CHEMICAL-GUIDED IDENTIFICATION OF PRIMARY METABOLIC TARGETS FOR IMPROVEMENT OF HYDROXY FATTY ACID SYNTHESIS IN PHYSARIA FENDLERI

A Data Management Plan created using DMPTool

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Both digital and non-digital primary data types will be collected for this project via lab work. For objective one, all embryo masses and spectrophotometer data are recorded in a non-digital format, where they are then uploaded into digital format. All metabolomics output via GC-MS and LC-MS/MS quantification is to be generated and stored digitally. All data collected for objective two will beprimary in nature, in digital format, except for relevant mass measurements obtained at scales or other observational notes. All non-digital format data will be routinely imported into digital format as recorded. All relevant statistical/analytical data will be originally generated in digital format and stored as such.

Excel spreadsheets are where all initial calculations are to take place for objective one. Output from both GC-MS and LC-MS/MS for all objectives is obtained via Analyst software connected to these instruments, which can then be tabulated following integration and stored/analyzed in Excel. The data generated from both objectives will be summarized and stored digitally in Excel files; all associated primary and metadata will be analyzed and/or summarized in Metaboanalyst or R. Omix software will be used for visualization, with storage in the associated file types. Data generated by 13C-labeling will be carried out using 13C-FLUX software, with associated file types used for storage. Statistics performed for all objectives will take place in R or MetaboAnalyst, and output from both softwares will be stored as R scripts or summarized in Excel spreadsheets. Data format will be consistent with all software used and stored in a format that allows for independent interpretation.

Data generated by this project will be stored in two cloud locations associated with locked individual accounts tied with the institution, both DropBox and OneDrive. Data will further be stored in local format on a private institutionally-owned computer and will be regularly backed up following all generation or amendments of files on a private external hard-drive in a private location. This will allow data to be stored during the project in four separate places to promote security through

diversification. Data will be stored in cloud sources and an external hard drive following the end of the project for an appropriate time period, with relevant data submitted as supplementary information to journals containing published versions of this work and appropriate data repositories. Publicly available data that is submitted following respective parts of the project will be stored and maintained via the standards set by the receiving database(s), which include but are not limited to NDEx, KEGG, Dryad Digital Repository, and/or PubChem.

All data will be carefully stored in an exclusively private manner during performance of the project's respective parts, but will be readily submitted to public-access databases (as deemed appropriate by the project director and the primary mentor) only following final publication via peer-reviewed journals. All data presented during seminars, prior to or following any publication, will only be in summary format. Restrictions such as copyrights and intellectual property will be retained in accordance with policies set by the institution and USDA. The project director and associated lab maintains secure accounts on both aforementioned cloud formats, and the project director will be in sole and direct possession of the locked external hard drive used for storage as well as the locked local computer containing the original data.

The execution of the data management plan, along with management and storage, will be rigorously carried out via the project director. Access to data will never be publicly accessible throughout the duration of the project, and will only be shared with other lab members if deemed necessary via the project director and/or primary mentor.

The project director (I, Christopher Johnston) fully understands and agrees to all relevant guidelines, policies, terms, and conditions established by USDA-NIFA and USDA-AFRI, with annual and final reports containing all information pertaining to the execution of the data management plan outlined here. I ensure rigorous compliance with Research Terms and Conditions that govern NIFA- funded projects.